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AKM equal to angle EDB or the points B, D, M and K are concyclic and therefore is angle $BMD = \text{angle } BKD = 90^\circ$.

This problem was also solved by *G. B. M. ZERR, O. W. ANTHONY, E. W. MORRELL, and P. S. BERG.*

PROBLEMS.

48. Proposed by I. J. SCHWATT, Ph. D., Professor of Mathematics in the University of Pennsylvania, Philadelphia, Pennsylvania.

The Simson line belonging to one point of intersection of Brocard's Diameter, of a triangle with the circumcircle of this triangle is either parallel or perpendicular to the bisector of the angle formed by the side BC of the triangle ABC and the corresponding side $B' C'$ of Brocard's triangle.

49. Proposed by J. C. WILLIAMS, Rome, New York.

Of all triangles inscribed in a given segment of a circle, with the chord as base, the isosceles is the maximum.

CALCULUS.

Conducted by J. M. COLAW, Monterey, Va. All contributions to this department should be sent to him.

SOLUTIONS OF PROBLEMS.

34. Proposed by GEORGE LILLEY, Ph. D., LL. D., Park School, Portland, Oregon.

A hare is at O , and a hound at E , 40 rods east of O . They start at the same instant each running with uniform velocity. The hare runs north. The hound runs directly toward the hare and overtakes it at N , 320 rods from O . How far did the hound run?

1. Solution by M. C. STEVENS, A. M., Professor of Mathematics, Purdue University, Lafayette, Indiana; COOPER D. SCHMITT, A. M., University of Tennessee, Knoxville, Tennessee; and G. B. M. ZERR, A. M., Ph. D., Inter States College, Texarkana, Texas.

Let $u = \text{velocity of hound}$, $v = \text{velocity of hare}$, $AO = a$, $BO = b$,

$OH = x$, $PH = y$, $AP = s$, $\frac{v}{u} = n$. Then $nPA =$

Of. $\therefore ns = y - x \frac{dy}{dx}$.

Differentiating with respect to x , we have $n \frac{ds}{dx} = -x \frac{d^2y}{dx^2}$. But s increases as x

diminishes, whence $\frac{ds}{dx} = -\sqrt{1 + \left(\frac{dy}{dx}\right)^2}$. $\therefore \frac{n}{x}$

